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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GREGORY I. ROZMAN, RICHARD J. LAPOINTE, and
DOUGLAS A. PARSONS

Appeal 2008-4291
Application 10/806,635
Technology Center 2800

Decided: November 13, 2008

Before KENNETH W. HAIRSTON, JOHN A. JEFFERY, and MARC S.
HOFF, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-20. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

Appellants invented a system, method, and engine assembly for generating power. The engine assembly includes an engine and permanent magnet motor. During engine starting operation, the motor starts the engine with a first phase controlled rectifier selectively coupling the motor to a power source. The second phase rectifier is disabled. Once the engine is running, the motor also generates power for the load with a second phase controlled rectifier selectively coupling the motor to the load. The first phase rectifier is then disabled.¹

Independent claim 1 is reproduced below:

1. A system for starting an engine and generating power while the engine is running, comprising:

a permanent magnet motor;

a first phase controlled rectifier associated with the motor for selectively coupling the motor to a power source for providing power to the motor from the power source during an engine starting operation; and

a second phase controlled rectifier associated with the motor for selectively coupling the motor to a load, for providing power from the motor to the load if the permanent magnet motor is coupled with the engine and rotating simultaneously with the engine and the engine is running.

The Examiner relies on the following prior art references to show unpatentability:

Latos	US 4,992,721	Feb. 12, 1991
Yoneta	US 5,574,345	Nov. 12, 1996
Amano	US 6,426,608 B2	Jul. 30, 2002
Honda	US 2004/0008527 A1	Jan. 15, 2004

¹ See generally Spec. ¶¶ 7, 9, 14-19, and 22.

(1) The Examiner rejects claims 1-6, 9-17, 19, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Latos and Yoneta.

(2) The Examiner rejects claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Latos, Yoneta, and Honda.

(3) The Examiner rejects claims 8 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Latos, Yoneta, and Amano.

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Briefs² and the Answer³ for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments which Appellants could have made but did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

REJECTION OF LATOS AND YONETA

The Examiner rejects claims 1-6, 9-17, 19, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Latos and Yoneta. Regarding the independent claims, the Examiner indicates that the combination of Latos and Yoneta teaches all the limitations (Ans. 3-5). Appellants argue that modifying Latos based on the Yoneta teaching teaches away from the explicit disclosure of Latos (App. Br. 5-7).

ISSUES

The following issues have been raised in the present appeal:

² We refer to the most recent Appeal Brief filed July 5, 2007, and the Reply Brief filed December 27, 2007, throughout this opinion.

³ We refer to the Examiner's Answer mailed October 31, 2007, throughout this opinion.

(1) Does Latos teach away from the proposed combination with Yoneta?

(2) Has the Examiner provided a sufficient reason to add a second phase controlled rectifier to the Latos system to support the prima facie case of obviousness?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

1. Latos states system 10 operates to convert the power of the prime mover or engine 12 into AC electrical power and to deliver the power to the load bus 16 (Latos, col. 3, ll. 40-46; Figs. 1-2).
2. The Latos inverter 32 converts the power to AC (Latos, col. 4, ll. 2-4).
3. Latos discloses a single rectifier 26 and an inverter 32 in the system 10 (Latos, col. 3, l. 65 – col. 4, l. 4; Fig. 2).
4. Yoneta teaches a single rectifier 2 and an inverter 4 in the system (Yoneta, col. 3, ll. 42-48; Fig. 3).
5. Yoneta discloses the inverter 4 functions to rectify the regenerative electric power generated by the motor (Yoneta, col. 2, ll. 47-52, col. 3, ll. 58-63, col. 4, ll. 25-53, and col. 5, ll. 7-9 and 15-16).
6. Yoneta includes a circuit 3 separate from the rectifier circuit 2 that smoothes the voltage (Yoneta, col. 3, ll. 42-47).

PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, the Examiner must establish the facts to support the legal conclusion of obviousness. *See In re*

Fine, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

Discussing the question of obviousness of a patent that claims a combination of known elements, the U. S. Supreme Court explains:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [v. *AG Pro, Inc.*, 425 U.S. 273 (1976)] and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR Int'l v. Teleflex, Inc., 127 S. Ct. 1727, 1740 (2007).

If the proposed modification would render the prior art invention unsatisfactory for its intended purpose, then a reason to make the proposed modification does not exist. See *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

ANALYSIS

Appellants first argue that any suggestion by Yoneta to place a rectifier after the inverter of Latos would no longer provide AC power to the load (App. Br. 6-7). Specifically, Appellants contend Latos “expressly intends to provide three phase AC power to the load bus 16” (App. Br. 6)

and that such a modification to Latos would defeat the intended purpose or operation of Latos (App. Br. 6; Reply Br. 1).

Latos states that system 10 operates to convert the power of the prime mover or engine 12 into AC power and to deliver the power to the load bus 16 (FF 1). The inverter 32 performs the AC power conversion (FF 2). Thus, as Appellants indicate (App. Br. 6), placing a second rectifier between the inverter 32 and the load bus 16 will result in the converted AC power being switched back to DC power. As Latos is designed to have AC power delivered to the bus 16, Latos teaches away from placing a rectifier after the inverter 32. Moreover, such a combination would change the respective operation and function of many elements in the Latos system as they would have to be redesigned for DC power. Thus, the addition of a second rectifier after the inverter 32 would render the Latos system unsatisfactory for its intended purpose. *See Gordon*, 733 F.2d at 902.

The Examiner also argues that the claim does not include AC power and Latos fails to explain why AC power is critical (Ans. 6). While we acknowledge that claim 1 does not recite AC power, we nonetheless must examine the prior art's teachings as a whole and determine whether the references would have been reasonably combinable. As the United Supreme Court emphasizes, "when prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." *KSR*, 127 S. Ct. at 1740. Latos teaches away from including a second rectifier after the inverter 32, as previously discussed. Additionally, the test for obviousness does not involve a determination of the criticality of a feature disclosed by Latos. Rather, supporting an obviousness conclusion involves showing that all the claimed

elements were known in the prior art and skilled artisans would have combined the claimed elements by known methods with no change in their respective functions. In other words, the proposed combination yields nothing more than expected and predictable results. *KSR*, 127 S. Ct. at 1740. In our view, including a second rectifier after the inverter 32 would fundamentally change the function of the Latos system. Thus, Latos teaches away from the proposed combination with Yoneta.

Alternatively, the Examiner has found that Yoneta teaches placing a second rectifier between the converter 26 and the inverter 32 of the Latos system (Ans. 6). Appellants contend that Latos already includes a converter or rectifier 26, and the additional rectifier provides “no benefit” to Latos and is redundant (App. Br. 7; Reply Br. 1). In response, the Examiner states the additional rectifier would smooth and stabilize the power (Ans. 7).

First, both Latos and Yoneta teach only a single rectifier in their respective systems (FF 3, 4). Latos has a converter or rectifier 26 immediately before the inverter 32 (FF 3). Similarly, Yoneta discloses a rectifier circuit 2 (FF 4). Thus, neither Latos nor Yoneta discloses or suggests including two rectifiers in a power system in the manner claimed. Second, Yoneta discloses that the inverter 4 functions to rectify the regenerative electric power generated by the motor (FF 5). The rectifier 2 is not involved in this process. In our view, to include a second rectifier in the Latos system “to rectify the ac regenerative power being supplied back,” as the Examiner proposes (Ans. 4) simply does not comport with the teachings of the prior art and is therefore unavailing. Third, Yoneta includes a circuit 3 in the Latos system separate from the rectifier that functions to smooth the voltage (FF 6). At best, based on Yoneta, skilled artisans would include a

smoothing circuit 3—not an additional rectifier—to smooth and stabilize the power.

Moreover, the record does not provide a sufficient explanation of a design incentive or general knowledge possessed by a person having ordinary skill in the art to determine that there was an apparent reason to combine the teachings of Yoneta with Latos in fashion claimed. *KSR*, 127 S. Ct. 1740-41. In short, the Examiner has not provided a sufficient basis for adding a second phase controlled rectifier to the Latos system to support the legal conclusion of obviousness.

We are therefore persuaded that the Examiner erred in rejecting independent claim 1 over Yoneta and Latos. We reach the same conclusion with respect to independent claims 9 and 16, as they recite commensurate limitations regarding the two distinct phase controlled rectifiers.

For the foregoing reasons, Appellants have shown error in the Examiner's obviousness rejection of independent claims 1, 9, and 16 based on the collective teachings of Latos and Yoneta. Accordingly, we will not sustain the rejection of claim 1 and dependent claims 2-6, claim 9 and dependent claims 10-14, and claim 16 and dependent claims 17, 19, and 20 for similar reasons.

REJECTION OF LATOS, YONETA, AND HONDA

We next turn to the rejection of claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Latos, Yoneta, and Honda. Claim 7 depends indirectly from claim 1. As previously explained, the combination of Latos and Yoneta does not teach all the elements of claim 1, and we incorporate that discussion by reference. Moreover, Honda does not cure the above

noted deficiencies of Latos and Yoneta. We are, thus, persuaded by Appellants' arguments for the reasons previously discussed in connection with claim 1.

For the above reasons, Appellants have shown the Examiner erred in rejecting claim 7 under 35 U.S.C. § 103(a) based on the collective teachings of Latos, Yoneta, and Honda.

REJECTION OF LATOS, YONETA, AND AMANO

We next turn the rejection of claims 8 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Latos, Yoneta, and Amano. Claim 8 depends from claim 1, and claim 18 depends from claim 16. As previously explained, the combination of Latos and Yoneta does not teach all the elements of claims 1 or 16, and we incorporate that discussion by reference. Moreover, Amano does not cure the above noted deficiencies of Latos and Yoneta. We are, thus, persuaded by Appellants' arguments for the reasons previously discussed in connection with claims 1 and 16.

For the above reasons, Appellants have shown the Examiner erred in rejecting claims 8 and 18 under 35 U.S.C. § 103(a) based on the collective teachings of Latos, Yoneta, and Amano.

DECISION

We have not sustained the Examiner's rejection with respect to all claims on appeal. Therefore, the Examiner's decision rejecting claims 1-20 is reversed.

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REVERSED

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